ORDER NO. TD90030371C2

Service Manual

Radio Cassette

RQ-V151

Stereo Radio Cassette Player

Color

(K)····· Black Type

Area

Country Code	Areas	Color
[E]	Continental Europe.	(K)
[EG]	F.R. Germany/ Italy.	

RQ-V150 MECHANISM SERIES (HRB27)

■ SPECIFICATIONS

General:

Power Requirement:	Battery; 3V (Two "AA" size, R6/LR6 batteries)
	AC; with optional Panasonic AC adaptor RP-AC33E
Power Output:	40mW (20mWx2)···RMS (max.)
Input:	DC IN; 3V
Output:	Headphones; 32Ω, φ3.5
Dimensions:	84(W)×126(H)×37.9(D)mm
Weight:	(Main Unit) 260g without batteries
	Headphones 50g with cord

Radio Section:

Radio Frequency Range:	FM 87.5~108MHz
	AM 520~1610kHz
Intermediate Frequency:	FM 10.7MHz
	AM 459kHz···[E]only
	455kHz···[EG]only
Sensitivity:	FM 2.5μV/0.5mW output (−3dB Limit, Sens)
	AM; 130μV/m/0.5mW output

Tape Deck Section:

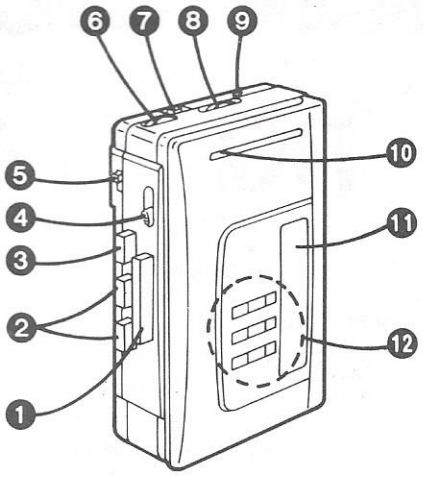
Frequency Response:	Normal·····50~14,000Hz
Tape Speed:	4.8cm/s
Program Time:	1 hour with C-60 cassette tape
Track System:	4-track, 2-channel, stereo playback

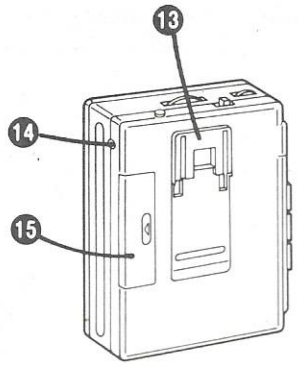
Weights and dimensions shown are approximate.
Design and specifications are subject to change without notice.

Panasonic

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

LOCATION OF CONTROLS AND COMPONENTS





❶ **PLAY Button**
❷ **FAST Buttons**
❸ **STOP Button**
❹ **DIR (Direction) Button**
❺ **SELECTOR Switch [RADIO, TAPE]**
❻ **VOLUME Control**
❼ **BAND/FM SENS (Sensitivity) Selector [AM, FM/DX, FM/LOCAL]**
❽ **TUNING Control**
❾ **PHONES (Headphones) Jack ∅3.5, 32Ω**
❿ **FM ST (FM Stereo) Indicator**
⓫ **Cassette Compartment**
⓬ **GRAPHIC EQUALIZER Controls [100HZ/1kHZ/10kHZ]**
⓭ **Clip Receptacle**
⓮ **DC IN (Input) Jack (DC IN 3 V ⊖-●-⊕)**
- Use only Panasonic AC Adaptor, optional RP-AC33.

⓯ **Battery Compartment**

DISASSEMBLY INSTRUCTIONS

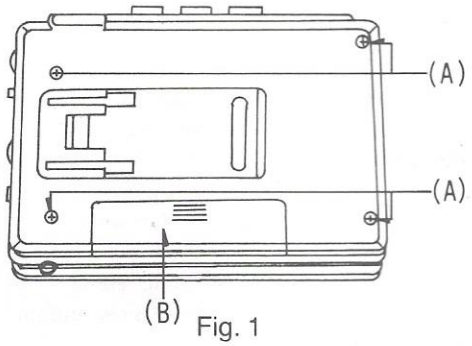


Fig. 1

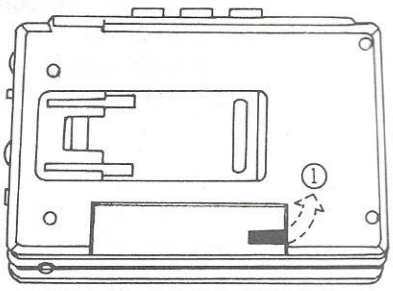


Fig. 2

■ Removal of the Rear Cabinet

1. Remove the screws (A) (2×10)mm×4
2. Open the battery (B) ×1
3. Remove the rear cabinet in the direction of arrow①.

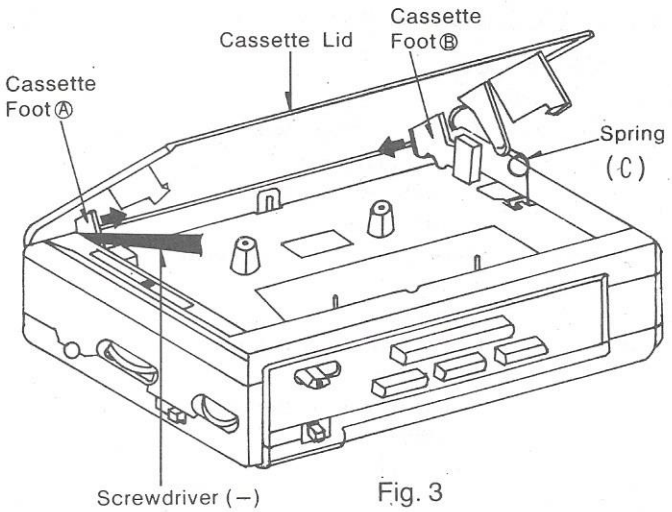


Fig. 3

■ How to Removal of the Cassette Lid:

Note: Be careful not to break cassette foots Ⓐ and Ⓑ when removing the cassette lid.

1. Open the cassette lid.
2. With a screwdriver, push cassette foot Ⓐ to the right as shown in Fig.3, and then pull out the right side of the cassette lid.
3. Push cassette foot Ⓑ to the left and then pull out the cassette lid.
4. Remove the spring. (C)×1.

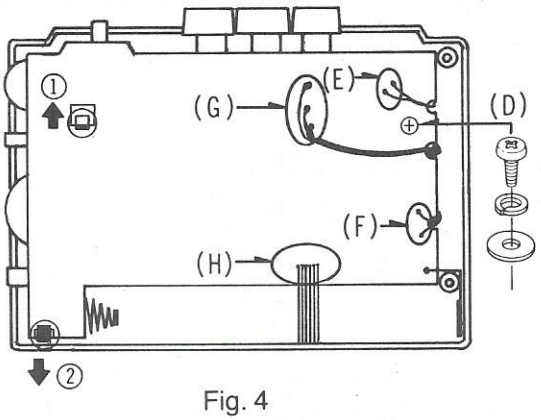


Fig. 4

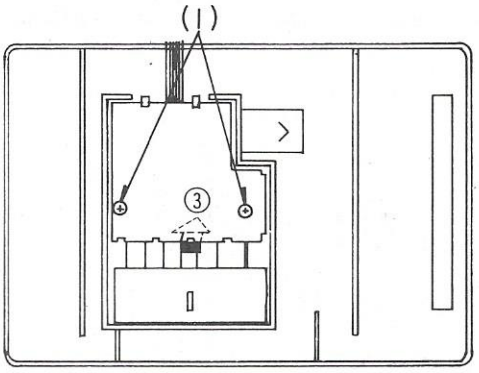


Fig. 5

■ Removal of the Dial Chassis and Circuit Board

1. Remove the chassis screw(D) (2×6)mm×1.
2. Remove the dial chassis in the direction of arrow ①, ②.
3. Remove the Solder (E)(F)(G)(H) form flexibk PC board.

■ Removal of the Cassette Holder & Graphic Equalizer PC board.

1. Remove the Screws (I) (1.4X3.5)mm X2.
2. Remove the Graphic Equalizer PC board in the direction of arrow③.

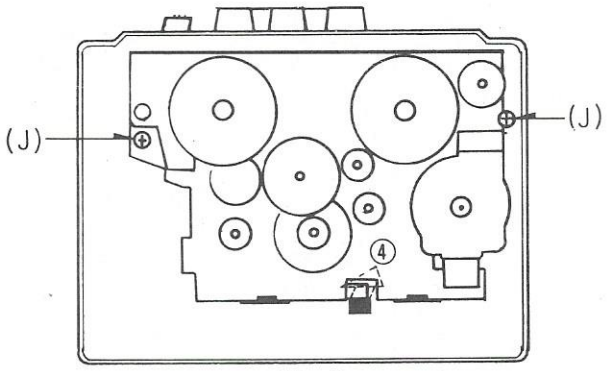


Fig. 6

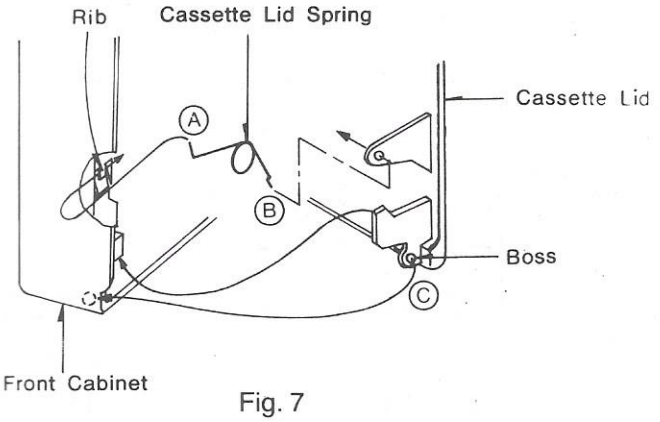


Fig. 7

■ Removal of the Front Cabinet and Mechanism

1. Remove the deck screws (J) (2×6)mm×2.
2. Remove the front cabinet & mechanism in the direction of arrow ④.

■ How to Replace the Cassette Lid Spring

1. Fit Part Ⓐ on the rib of the front cabinet.
2. Insert part Ⓑ in the hole in the cassette lid.
3. Fit the boss Ⓒ in the front cabinet.

■ TO Removal of Tuning Gear

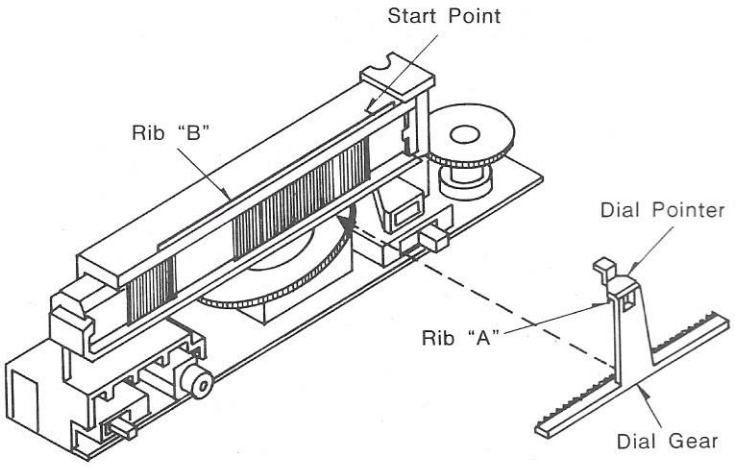


Fig. 8

1. Firstable turn the tuning shaft of the variable capacitor counter clockwise, to the end.
2. Second, before pointer be installed on chassis, pointer must be setted as shown.
3. Thire to in stalle pointer, inserted pointer by rib "A" to rib "B" of chassis.
4. Set the dial pointer to start point. (Fig. 8).

MEASUREMENTS AND ADJUSTMENTS

■ ADJUSTMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ADJUSTMENT

1. Set volume control to maximum.
2. Set band switch to AM or FM ST.
3. Set selector switch to radio.
4. Set power source voltage to 3 V DC.
5. Output of signal generator should be no higher than necessary to obtain an output reading.

■ AM ADJUSTMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
				AM-IF ALIGNMENT			
(1)	AM	Fashion a loop of several turns of wire and radiate the signal into the loop antenna of the receiver.	459kHz···[E] only 455kHz···[EG] only 30% Mod. at 400 Hz	Point of non-interference. (on/about 600kHz)	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 5. and then connect the lead wires of the plug to the measuring instrument.)	T2 (AM IFT)	Adjust for maximum output.
				AM-RF ALIGNMENT			
(2)	AM	〃	511kHz···[E] only 516kHz···[EG] only	Tuning capacitor fully closed.	〃	L4 (AM OSC Coil)	Adjust for maximum output.
(3)	AM	〃	1650kHz···[E] only 1635kHz···[EG] only	Tuning capacitor fully open.	〃	CT3 (AM OSC Trimmer)	〃
(4)	AM	〃	550kHz	Tune to signal.	〃	(＊1) L5 (AM ANT Coil)	Adjust for maximum output. Adjust L5 by moving coil bobbin along ferrite core.
(5)	AM	〃	1,500kHz	〃	〃	CT4 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).

(＊1) Fix antenna coil with wax after completing alignment.

■ FM ALIGNMENT

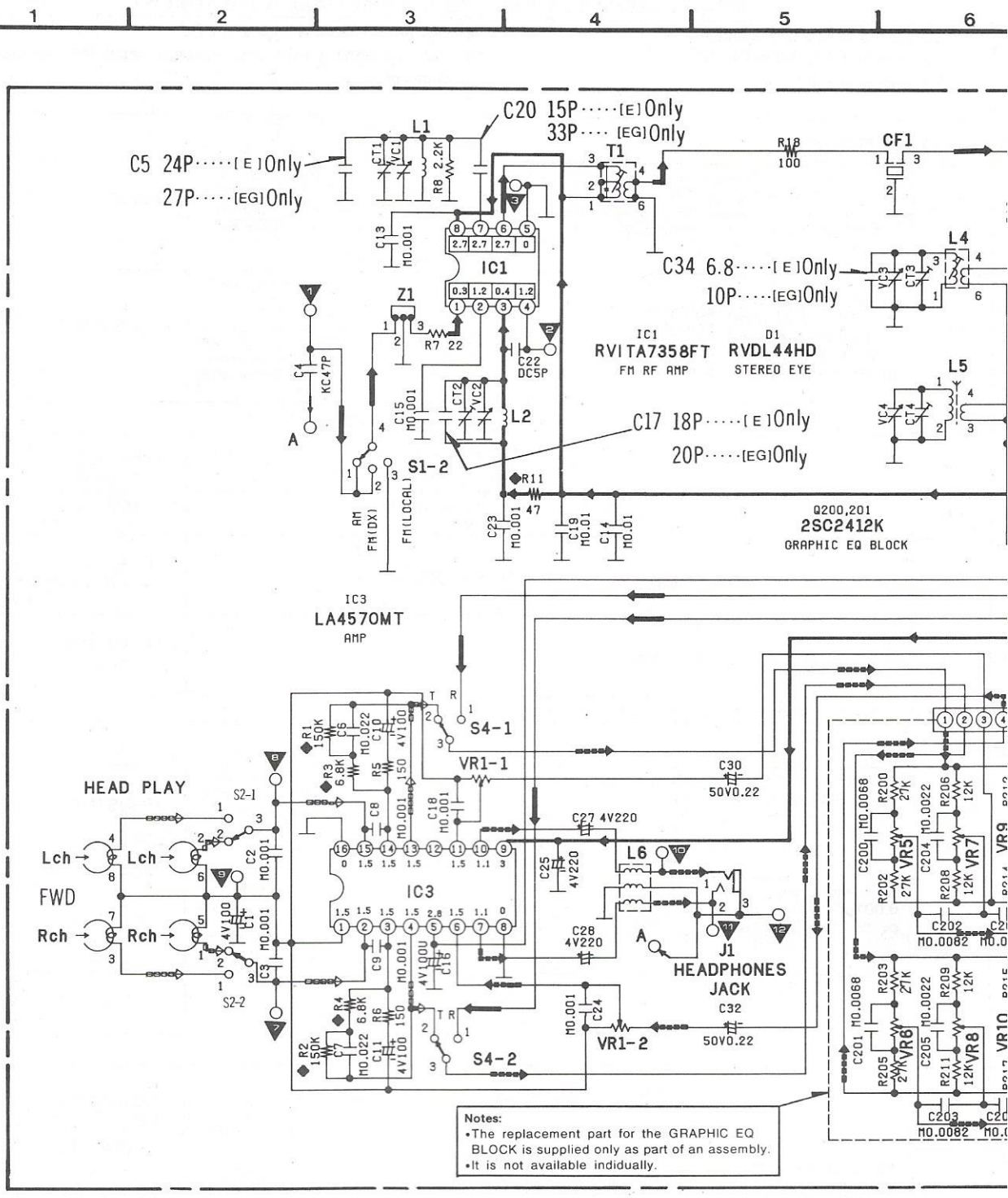
	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
				FM-IF ALIGNMENT			
(1)	FM	High side thru. 0.001μF to test point ▼2. Negative side to test point ▼3.	10.7MHz (SWP.)	Point of non-interference. (on/about 90MHz)	Connect vert. amp. of scope to test point ▼5. Negative side to test point Earth.	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 2.)
(2)	FM	〃	〃	〃	〃	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 3.)
				FM-RF ALIGNMENT			
(3)	FM	Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼3.	86.2MHz···[E] only 87.4MHz···[EG] only	Variable capacitor fully closed.	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 5. and then connect the lead wires of the plug to the measuring instrument.)	L1 (FM OSC Coil)	(＊2) Adjust for maximum output.
(4)	FM		109.3MHz···[E] only 108.3MHz···[EG] only	Variable capacitor fully open.		CT1 (FM OSC Trimmer)	〃
(5)	FM		90MHz	Tune to signal.		L2 (FM ANT Coil)	〃
(6)	FM		106MHz	〃		CT2 (FM ANT Trimmer)	(＊2) Adjust for maximum output. Repeat steps (3)~(6).

(＊2) Three output responses will be present; proper tuning is the center frequency.

■ FM STEREO SEPARATION ADJUSTMENT

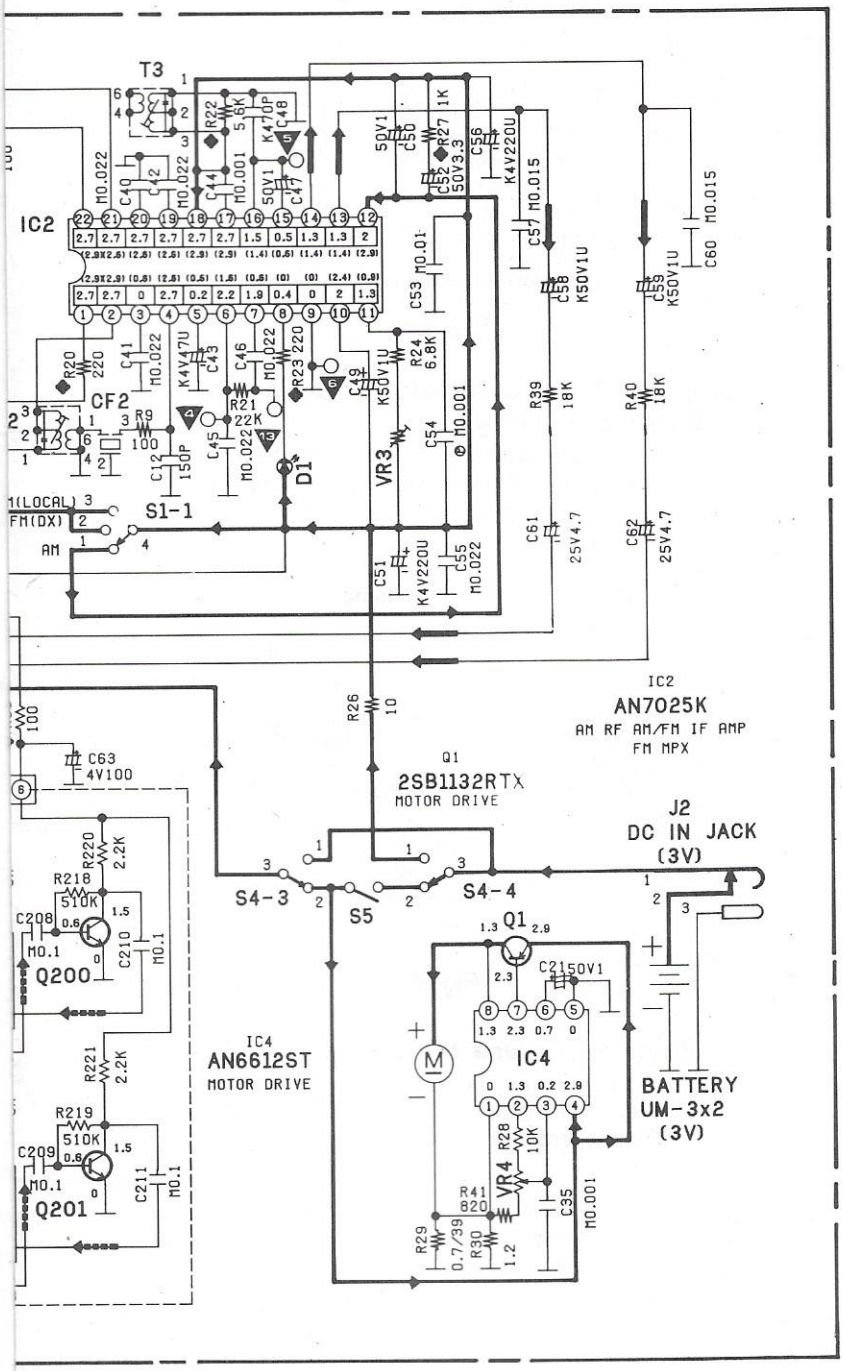
ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98MHz, 60dB (CW) Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼3.	▼13.....(+) Earth...(−)	VR3	19kHz	Adjust VR3, for 19kHz (±100Hz) reading on electronics counter.

SCHEMATIC DIAGRAM

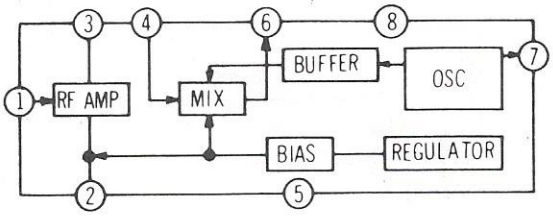


Notes:

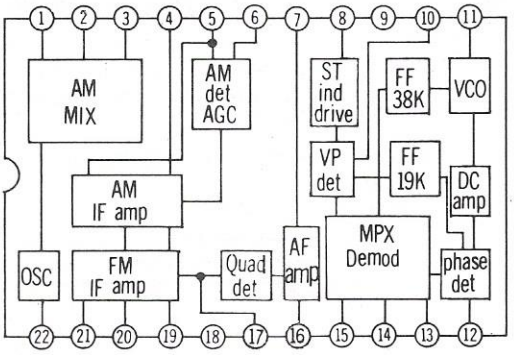
1. S1-1, S1-2: Band select switch in "AM" position. (1···AM, 2···FM/DX, 3···FM/LOCAL.)
2. S2-1, S2-2: FWD/REV select or switch in "REV" position. (1···FWD, 2···REV)
3. S4-1～S4-4: Selector switch in "Tape" position. (1···RADIO, 2···TAPE)
4. S5: Motor switch in "OFF" position.
5. VR1-1～1-2: Volume control VR.
6. VR3: FM VCO Frequency adjust VR.
7. VR4: Tape speed adjustment VR.
8. VR5～10: Graphic Equalizer VR (100Hz/1kHz/10
   VR5,6: 100Hz
   VR7,8: 1kHz
   VR9,10: 10kHz
9. The mark (▼) shows test point e.g. ▼1 = test
10. DC voltage measurement are taken with electro voltmeter from negative terminal of battery.
    □···FM position, ( )···AM position,
    No mark··· ···Playback position.



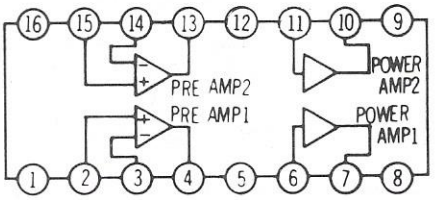
IC1 RVITA7358FT



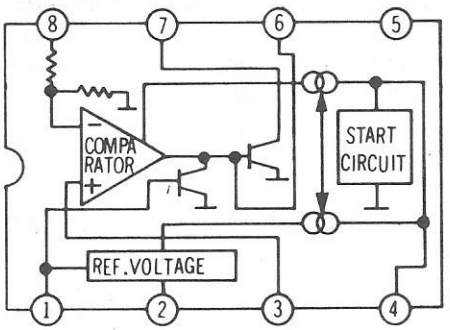
IC2 AN7025K



IC3 LA4570MT



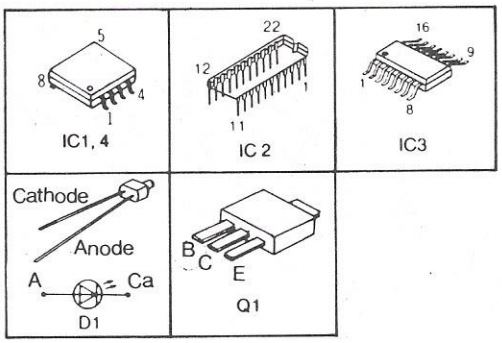
IC4 AN6612ST



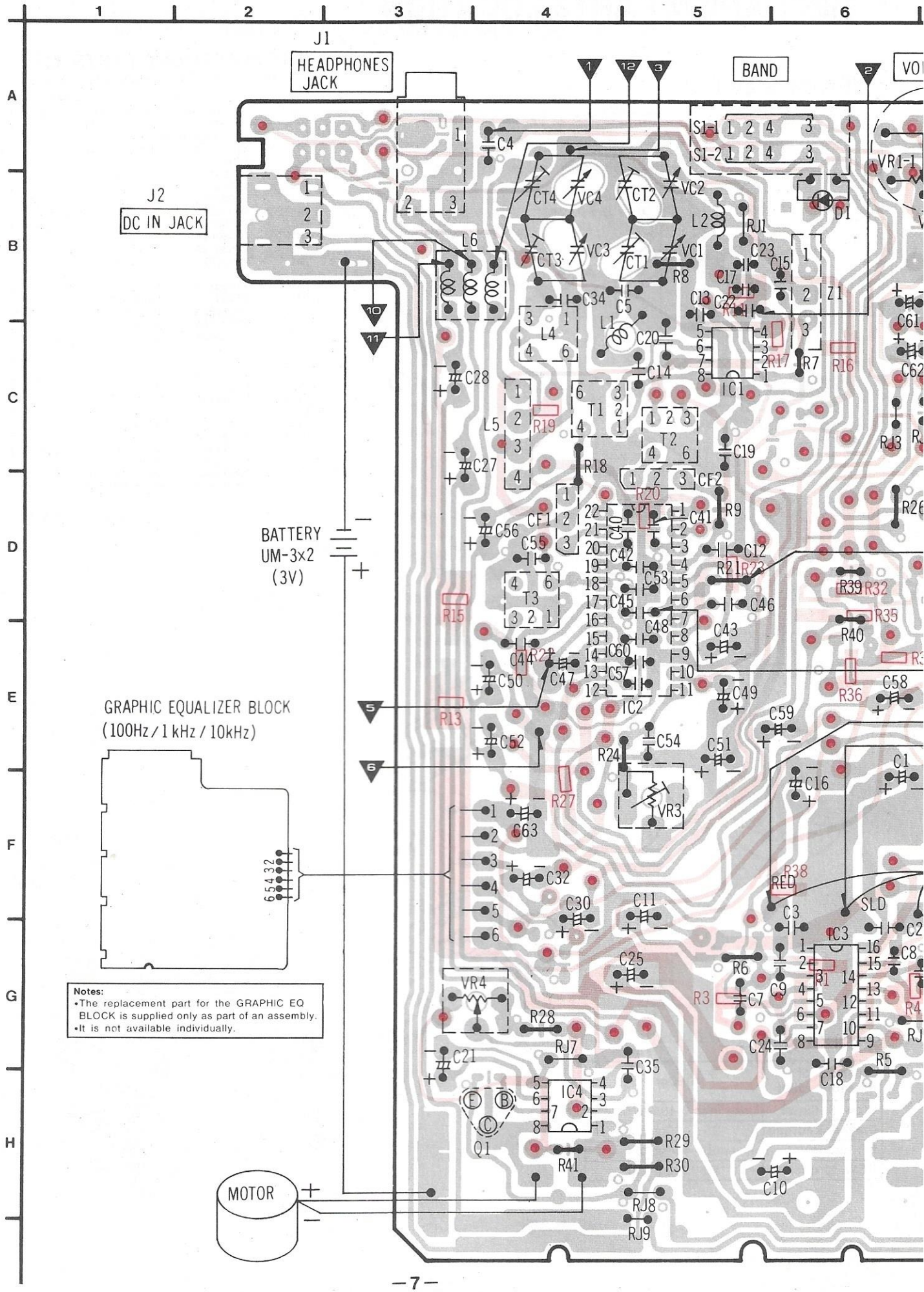
11. Battery current: Volume minimum output (radio) 15mA
Volume minmum output (tape) 120mA
Volume Maximum output (radio) 24mA
Volume Maximum output (tape) 157mA
(Radio, 74dB 30% Modulation
Tape,315 Hz 0dB tape playback)

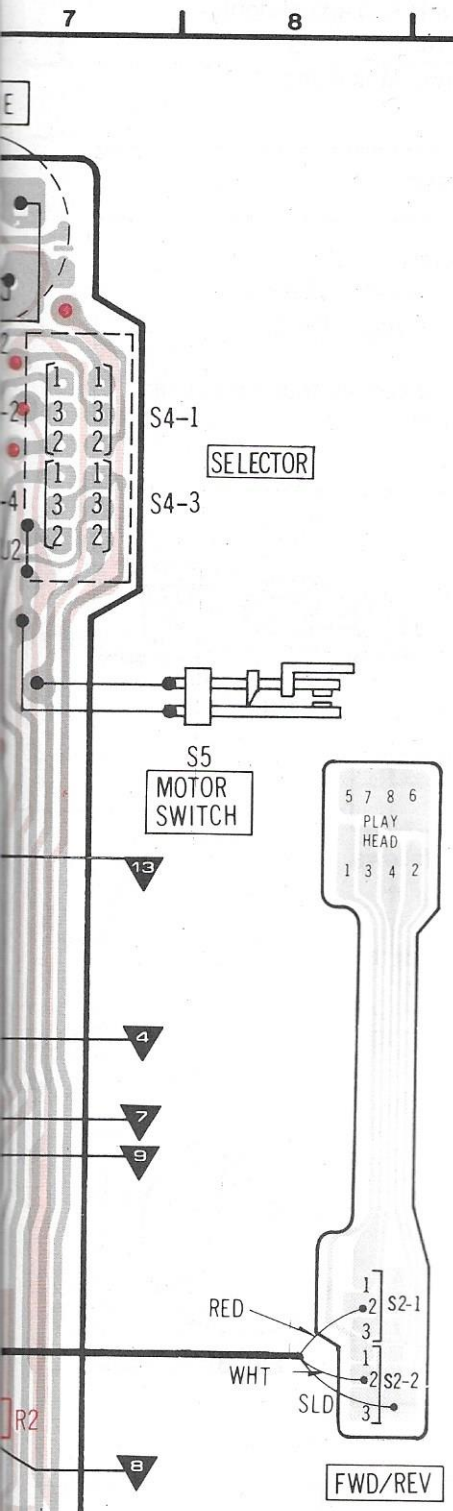
12. +B Voltage Line.
Playback Signal.
FM Signal.
Playback and Radio Signal.

13. ◆ ..... Printed Resistor.



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM





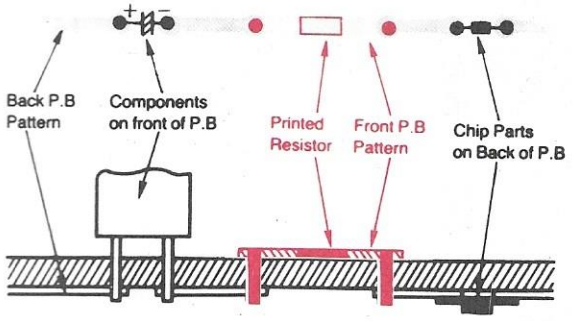
■ REPLACEMENT PARTS LIST

T Indicates parts that are supplied by TAMACO.

Ref. No.	Parts No.	Part Name & Description
	INTEGRATED CIRCUIT, TRANSISTORS	
IC1	RVITA7358FT	I. C. FM RF AMP
IC2 T	AN7025K	I. C. AM RF
IC3	LA4570MT	I. C. PRE AMP
IC4 T	AN6612ST	I. C. MOTOR DRIVE
Q1	2SB1132RTX	Transistor
D1 T	RVDL44HD	L. E. D.
L1[E] T	RL04Y19-3	Oscillator Coil FM
L1[EG] T	RL04N255-0	Oscillator Coil FM
L2 T	RL04Y15-2	Antenna Coil FM
L4 T	RL02A25	Oscillator Coil AM
L5 T	RLF2Y62-L	Ferrite Antenna
L6,7,8 T	RLQU100K	RF, Choke Coil
T1,3 T	RLI4A34	IFT, FM
T2	RLI2A37-M	IFT, AM
	VARIABLE RESISTORS	
VR1 T	RVV2H3A54M-Z	V. R. Volume Control
VR3 T	EVNDXAA02B14	V. R. FM Stereo
VR4 T	EVNDXAA02B52	V. R. Tape Speed
	VARIABLE CAPACITORS	
VC1-4 T	RCV4LCT6R	Tuning Capacitor, W/Trimmer Capacitor (CT1-4)
	CERAMIC FILTER	
CF1	RVF107WMZT	Ceramic Filter FM
CF2	RVFPFA459A	Ceramic Filter AM
	COMPONENT COMBINATION	
Z1	RCRBMT001-H	Component Combination
	SWITCHES	
S1 T	RSS3B35YA-Q	Slide Switch (Band)
S2	RFA90ZA	Slide Switch (FWD/REV)
S4 T	RSS2D25ZA-Q	Slide Switch (Function)
S5	RFA89ZA	Leaf Switch (MOTOR)
	JACKS	
J1	RJJD3S5ZA-C	Headphones Jack
J2	RJJ4301	DC IN Jack
	GRAPHIC EQUALIZER	
E1 T	EUWS0UPC1BC5	Graphic EQ Ass'y

Ref. No.	Parts No.
	RESISTORS
R5,6	ERD10TLJ151
R7	ERJ6GEYJ220
R8	ERD10TLJ222U
R9,18	ERD10TLJ101
R21	ERD10TLJ223
R24	ERD10TLJ682U
R26	ERD10TLJ100U
R28	ERD10TLJ103
R29 T	ERSL39JR70U
R30 T	ERD10TLJ1R2Y
R39,40	ERJ6GEYJ183V
R41	ERJ6GEYJ821
	CHIP AND MELF JUMPERS
RJ1,2,7, 8,10 T	ERD10TLJ000Y
RJ3,4,9,	ERJ6GEY0R00

Ref. No.	Parts No.
	CAPACITOR
C1,16	ECEA0GKS101
C2,3,18, 24,35,44 T	ECBL1H102KBY
C4 T	ECBL1H470JY
C5[E] T	ECUX1H240JCN
C5[EG]	ECUX1H270JCD
C6,7	ECUX1E223MB
C8,9,13, 15,23	ECUX1H102MBM
C10,63	ECEA0GK101
C11	ECEA0GKS101
C12 T	ECBL1H151KB
C14,19 T	ECBL1C103MDY
C16	ECEA0GKS101
C17 [E]	ECUX1H180KC
C17 [EG] T	ECUX1H200KC
C20[E] T	ECBL1H150JC
C20[EG] T	ECBL1H330JY
C21,58	ECEA1HK010
C22	ECUX1H050DC
C25,27,28, 56	ECEA0GK221
C30,32	ECEA1HKR22B
C34[E] T	ECBL1H6R8KC
C34[EG] T	ECBL1H100JCY
C40,41,42, 55 T	ECBL1E223ZF
C43	ECEA0GKS470
C45,46 T	ECBL0J223MDY
C47,49,50, 59	ECEA1HKS010
C48 T	ECBL1H471KB
C51	ECEA0GKS221
C52	ECEA1HKS3R3
C53	ECUX1E103MD
C54	ECUX1H102JC
C57,60 T	ECUX1E153MB
C61,62	ECEA1EK4R7



Notes:

1. The symbols (▭) shown in the circuit board indicate printed resistor.
2. The circuit shown in ( ) on the conductor indicates printed circuit on the back side of the printed circuit board.
3. The circuit shown in ( ) on the conductor indicates printed circuit on the front side of the printed circuit board.
4. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

•This circuit board diagram may be modified at any time with the development of new technology.

NOTES: Make sure the unit is in good working order before attempting measurements and adjustments.
Set the switches and controls to the positions as specified for this procedure.
- Make sure heads are clean.
- Make sure capstan and pinch roller are clean.
- Volume control: Maximum

ITEM	MEASUREMENT & ADJUSTMENT
Ⓐ **Head Azimuth Adjustment** Condition: ● Playback mode Equipment: ● Test tape ···QZZCFM	1. Assemble the mechanism and cabinet parts completely. 2. Play back the head azimuth adjusting tape (8kHz, −20dB···QZZCFM). 3. Adjust the azimuth adjusting screw (Refer to Fig 4) of Playback head to obtain the maximum monitor output. 4. After adjusting, repeat PLAY and STOP some times and confirm that the output variation is less than the specified level (Within 3 dB).
Ⓑ **Tape speed adjustment** Condition: ● Playback mode Equipment: ● DC power supply ● Digital electronic counter ● Test tape ···QZZCWAT.	1. Test equipment connection is shown in fig. 6. 2. Apply 3V to DC IN 3. Connect the Headphones output (24Ω) to the counter. 4. Playback the tape speed adjusting tape. (3kHz, −10dB QZZCWAT.) 5. Measure this frequency. **Standard value: 3000 $^{+90}_{-60}$Hz (4.75cm/s)** 6. If. measured value is not within standard, adjust as follows. ● **Tape speed adjustment** 1. Adjust tape speed adjustment VR4 so that frequency is 3000 $^{+90}_{-60}$ Hz. 2. Refer to Fig. 1. (Forward & Reverse)

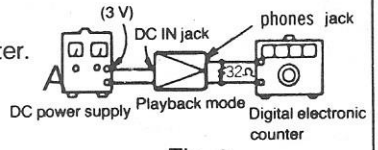
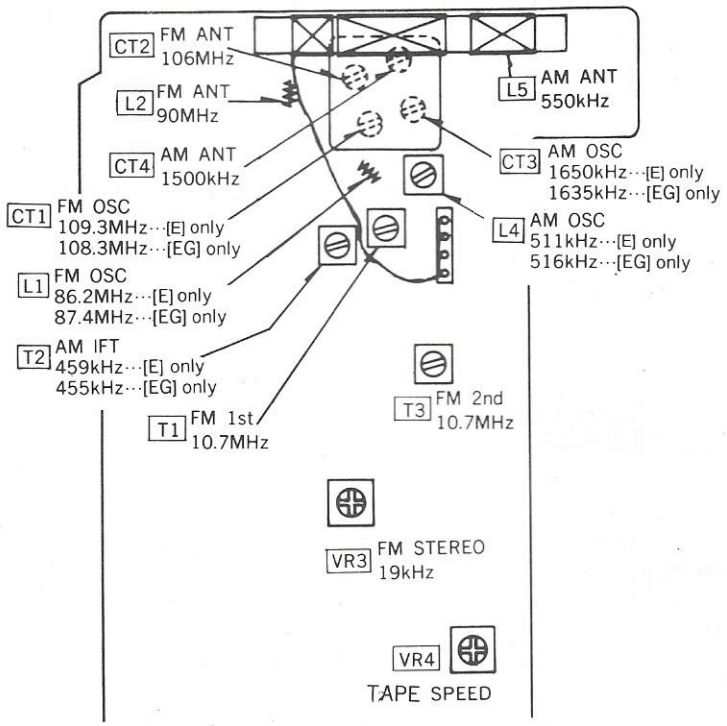


Fig. 6

■ ALIGNMENT POINTS

● Please refer to the Circuit Board and Wiring Connection Diagram to locate the test points.


CT2 FM ANT 106MHz
L2 FM ANT 90MHz
CT4 AM ANT 1500kHz
CT1 FM OSC 109.3MHz···[E] only 108.3MHz···[EG] only
L1 FM OSC 86.2MHz···[E] only 87.4MHz···[EG] only
T2 AM IFT 459kHz···[E] only 455kHz···[EG] only
T1 FM 1st 10.7MHz
L5 AM ANT 550kHz
CT3 AM OSC 1650kHz···[E] only 1635kHz···[EG] only
L4 AM OSC 511kHz···[E] only 516kHz···[EG] only
T3 FM 2nd 10.7MHz
VR3 FM STEREO 19kHz
VR4
TAPE SPEED
Fig. 1

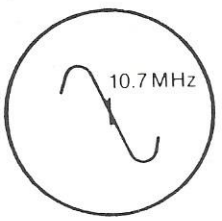


Fig. 2

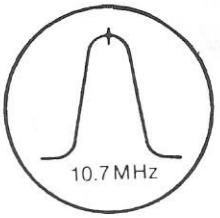


Fig. 3

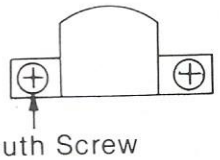


Fig. 4

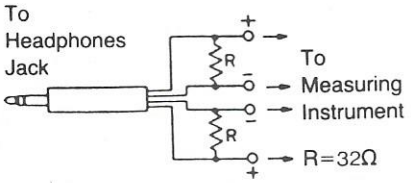
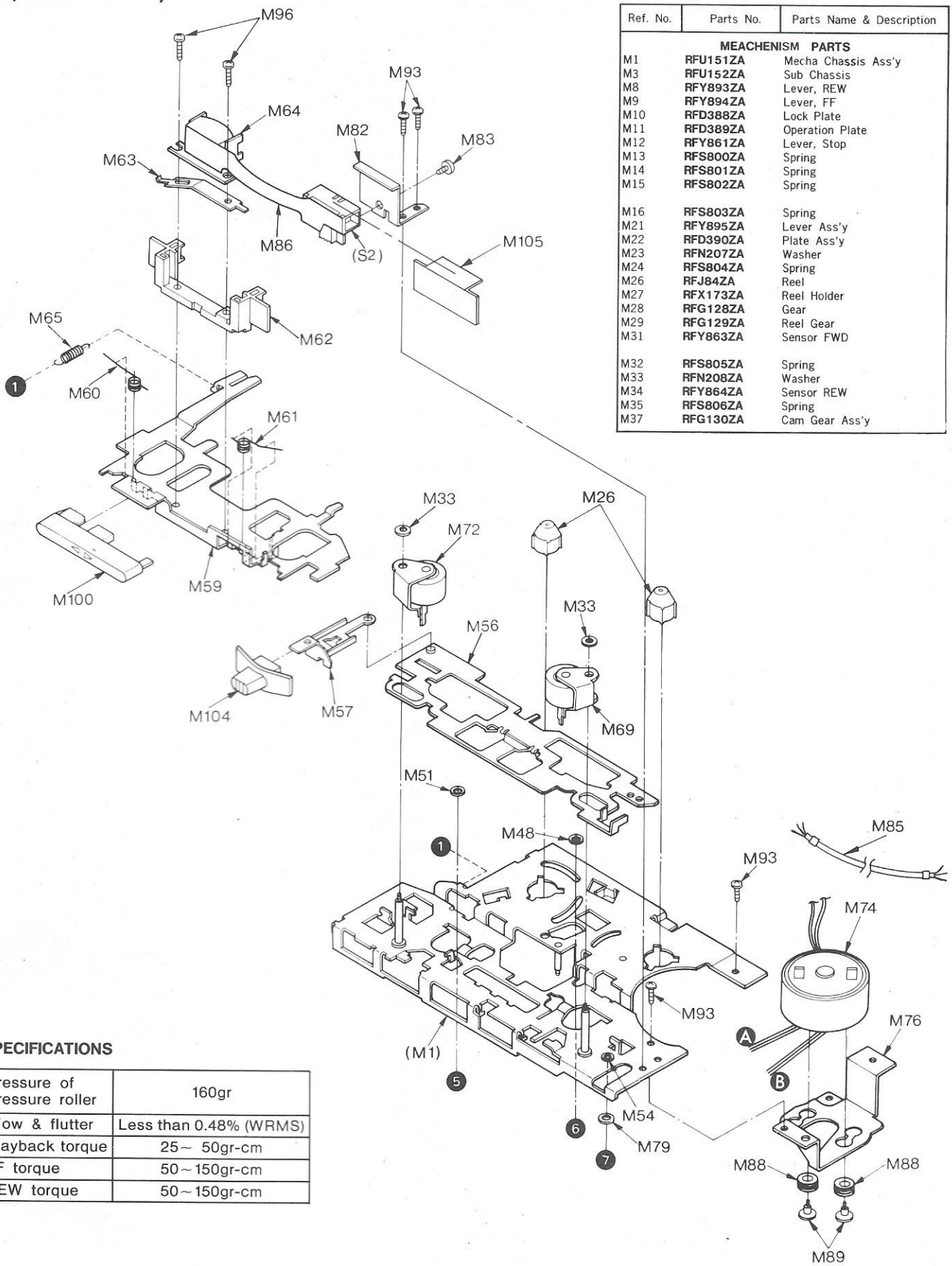


Fig. 5

MECHANISM PARTS LOCATION

(Front View)



■REPLACEMENT PARTS LIST

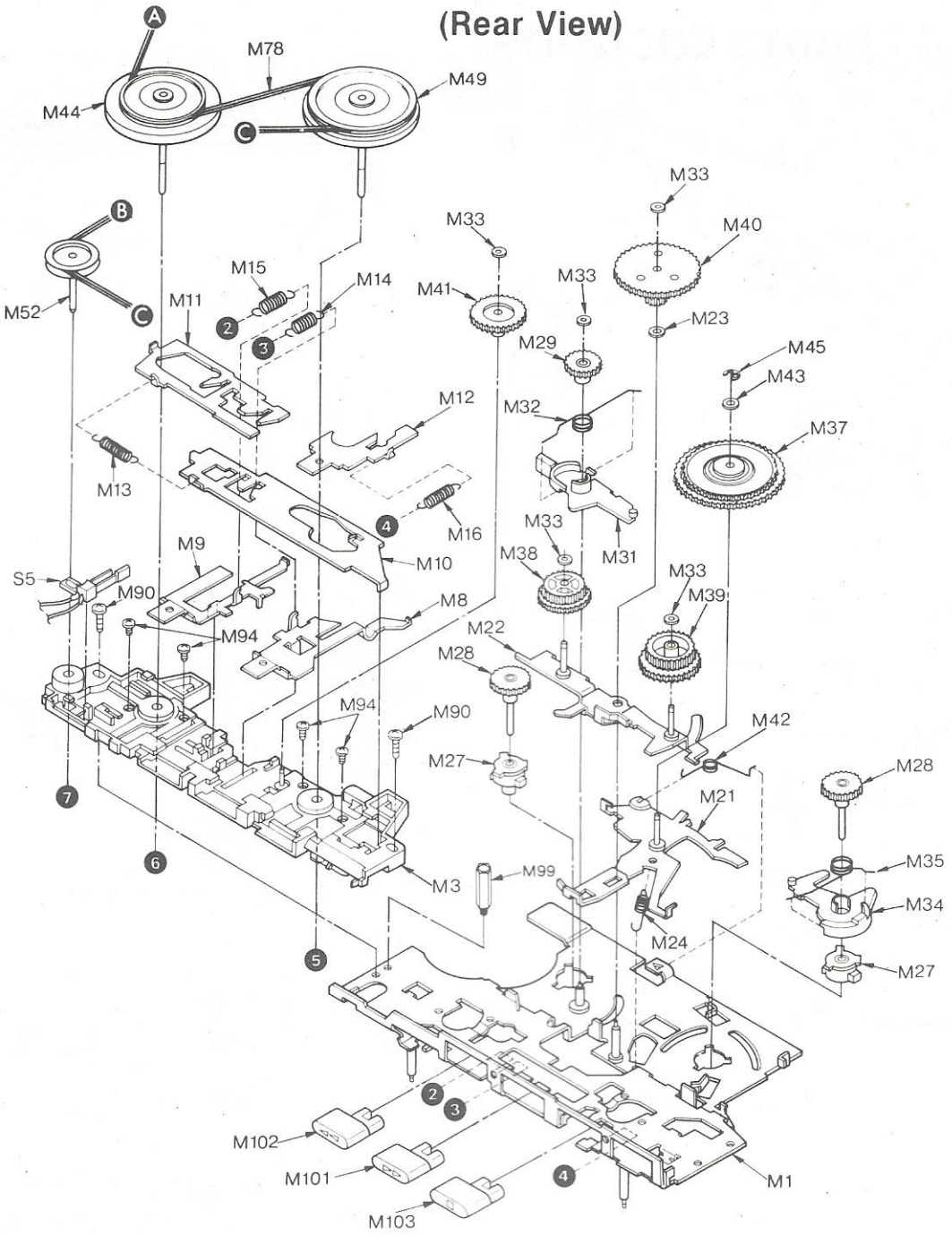
T Indicates parts that are supplied by TAMACO

Ref. No.	Parts No.	Parts Name & Description
	MEACHENISM PARTS	
M1	**RFU151ZA**	Mecha Chassis Ass'y
M3	**RFU152ZA**	Sub Chassis
M8	**RFY893ZA**	Lever, REW
M9	**RFY894ZA**	Lever, FF
M10	**RFD388ZA**	Lock Plate
M11	**RFD389ZA**	Operation Plate
M12	**RFY861ZA**	Lever, Stop
M13	**RFS800ZA**	Spring
M14	**RFS801ZA**	Spring
M15	**RFS802ZA**	Spring
M16	**RFS803ZA**	Spring
M21	**RFY895ZA**	Lever Ass'y
M22	**RFD390ZA**	Plate Ass'y
M23	**RFN207ZA**	Washer
M24	**RFS804ZA**	Spring
M26	**RFJ84ZA**	Reel
M27	**RFX173ZA**	Reel Holder
M28	**RFG128ZA**	Gear
M29	**RFG129ZA**	Reel Gear
M31	**RFY863ZA**	Sensor FWD
M32	**RFS805ZA**	Spring
M33	**RFN208ZA**	Washer
M34	**RFY864ZA**	Sensor REW
M35	**RFS806ZA**	Spring
M37	**RFG130ZA**	Cam Gear Ass'y

SPECIFICATIONS

Pressure of Pressure roller	160gr
Wow & flutter	Less than 0.48% (WRMS)
Playback torque	25~ 50gr-cm
FF torque	50~150gr-cm
REW torque	50~150gr-cm

(Rear View)



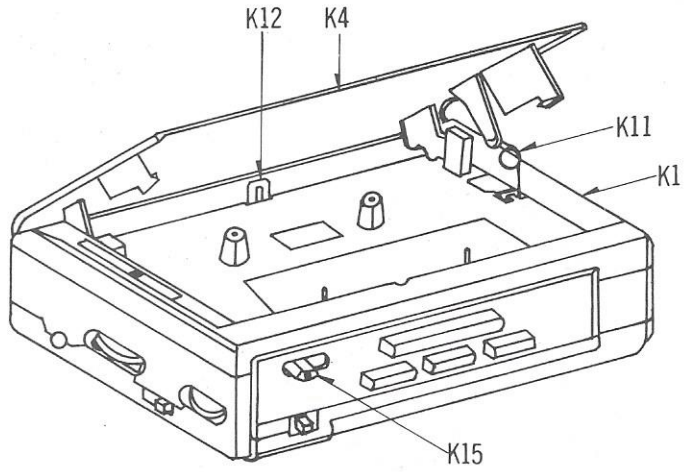
■ REPLACEMENT PARTS LIST

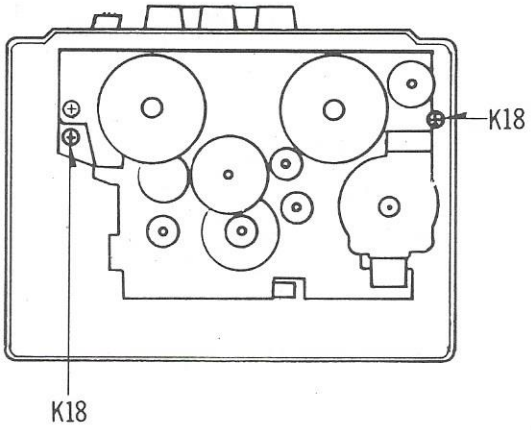
T Indicates parts that are supplied by TAMACO.

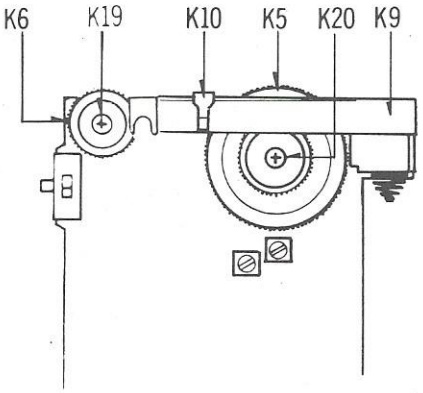
Ref. No.	Parts No.	Parts Name & Description
M38	**RFG131ZA**	Gear, FF
M39	**RFG132ZA**	Gear, REW
M40	**RFG133ZA**	Gear, Center A
M41	**RFG134ZA**	Gear, Center B
M42	**RFS832ZA**	Spring
M43T	**RFE520ZA**	Washer
M44T	**RFF74ZA**	Flywheel F Ass'y
M45T	**RFE521ZA**	E-Ring
M48	**RFN209ZA**	Washer
M49T	**RFF75ZA**	Flywheel R Ass'y
M51	**RFN210ZA**	Washer
M52	**RFQ59ZA**	Pulley, Center
M54	**RFN215ZA**	Washer
M56	**RFD391ZA**	Slide Plate
M57	**RFY865ZA**	Lever Direction
M59	**RFU153ZA**	Head Chassis
M60	**RFS808ZA**	Spring
M61	**RFS809ZA**	Spring
M62	**RFE489ZA**	Tape Guide
M63	**RFS810ZA**	Plate Spring
M64T	**RJH4C23MZAS**	Head
M65	**RFS811ZA**	Spring
M69	**RFR55ZA**	Pinch Roller F
M72	**RFR56ZA**	Pinch Roller R

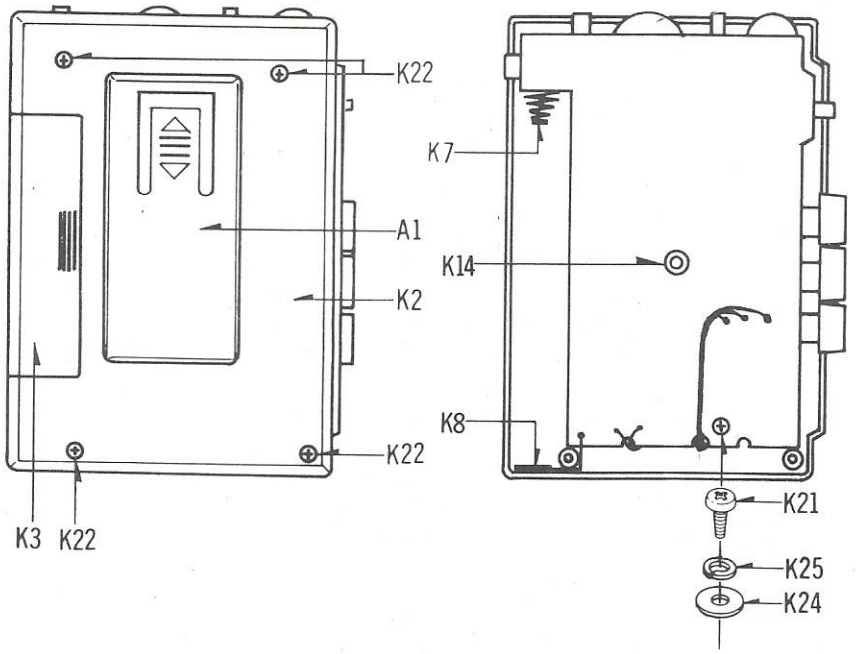
Ref. No.	Part No.	Part Name & Description
M74T	**RFM166ZA**	Motor Ass'y
M76	**RFD392ZA**	Motor Bracket
M78T	**RFB108ZA**	Belt
M79	**RFD393ZA**	Plate Earth
M82	**RFD394ZA**	SW Bracket
M83	**RFE490ZA**	Screw
M85T	**RFE522ZA**	Wire
M86	**RFT28ZA**	F. P. C.
M88	**RFI54ZA**	Rubber, Motor
M89	**RFE403ZA**	Screw
M90	**RFE492ZA**	Screw
M93	**RFE493ZA**	Screw
M94	**RFE494ZA**	Screw
M96	**RFE495ZA**	Screw
M99T	**RFD409ZA**	Shaft
M100T	**RBC291TZA**	Button Play
M101T	**RBC292TZA**	Button REW
M102T	**RBC293TZA**	Button FF
M103T	**RBC294TZA**	Button Stop
M104T	**RBS206TZA0**	Direction Knob
M105T	**RMC239TZA**	CU Shield

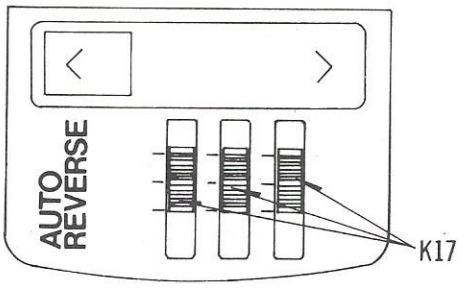
CABINET PARTS LOCATION











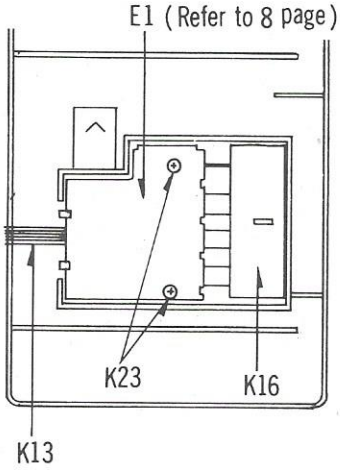
Notes:
- The replacement part for the GRAPHIC EQ BLOCK is supplied only as part of an assembly.
- It is not available individually.

■ REPLACEMENT PARTS LIST

T Indicates parts supplied by TAMACO.

Ref. No.	Parts No.	Parts Name & Description
	CABINET PARTS	
K1T	**RKM280TWA**	Front Cabinet
K2T	**RKF266TZA**	Rear Cabinet
K3T	**RKK232TZA**	Battery Cover
K4T [E]	**RYQQV151EKT**	Cassette Cover Ass'y
K4T [EG]	**RYQQV151EGKT**	Cassette Cover Ass'y
K5T	**RBT253TZA**	Knob, Tuning
K6T	**RBT254TZA**	Knob, Volume
K7T	**RJC288TZA**	Battery Terminal(−)
K8T	**RJC287TZA**	Battery Terminal(+)
K9T	**RUA225TZA**	Antenna Chassis
K10T	**RDP246TZA**	Pointer
K11T	**RUS256TZA**	Cassette Cover Spring
K12T	**RUS231TZB**	Tape Spring
K13T	**WBE6AH**	6P Wire
K14T	**RHR272TZA**	Cabinet Plug
K15T	**RBS206TZA**	Direction Knob
K16T	**RMX219TZA**	EQ. Ornament
K17T	**RBD241TZA**	EQ. Knob
K18T	**RHD003TZA**	Screw (Deck)
K19T	**XSH14+3**	Screw (VR. Knob)
K20T	**XSH17+3**	Screw (PVC)

Ref. No.	Parts No.	Parts Name & Description
K21T	**XSH17+5**	Screw (PWB Earth)
K22T	**XTNR2+10CFZ**	Screw (CAB)
K23T	**XTNR14+3.5CF**	Screw (EQ. Fixture)
K24T	**XWE18D4FN**	Washer (Deck Earth)
K25	**XWA2B**	Washer (Spring Washer)
	ACCESSORY	
A1T	**RKE210TZA**	Belt Clipper
A2T	**RP-HT104PY**	Headphones
A3T	**RQX804TZA**	Instruction Manual
	PACKING MATERIALS	
P1T	**RPK506TZA**	Carton Box
P2T	**RPN1445TZA**	Polylon
P3T	**RPP323TZA**	Polyethylene Cover



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